



# Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

## National Science Education Standards covered this week:

The plant kingdom contains organisms that can be divided into two separate groups: nonvascular plants (like mosses) that absorb water through their entire body in order to survive. Vascular plants (like trees) use a system of roots, stems and leaves to transport water throughout its entire body.

All plants have their own life cycles. Some produce seeds through flowers while other plants use other mechanisms for reproduction.

# Definitions

<b>Plant kingdom</b>	a group of organisms that are autotrophic and have some form of leaf, stem and root
<b>Autotrophic</b>	being able to make your own food
<b>Nonvascular plants</b>	plants without body parts to move water from their roots to the stem and to the leaves
<b>Moss</b>	one kind of nonvascular plant that can absorb water, like a sponge, with its entire body
<b>Vascular plants</b>	plants with special body parts that move water from their roots to the stem and to the leaves
<b>Non-Flowering plants</b>	vascular plants that do not make flowers
<b>Flowering plants</b>	vascular plants that make flowers
<b>Ferns</b>	nonflowering vascular plants which never produce flowers
<b>Conifers</b>	nonflowering vascular plants which never produce flowers but do produce seeds
<b>Rhizomes</b>	"Ri-zomes"; special areas on a plant's root that can grow a new plant

## **Sample questions to ask your child after completing the weekly reading.**

**Since a moss does not have a stem, how does it get the water it needs to survive?**

Mosses absorb water, like a sponge, throughout its entire body.

**What makes a plant "autotrophic"?**

Being able to make one's food makes an organism autotrophic.

**Which kinds of plants are usually much larger...vascular or non-vascular plants?**

Vascular plants are typically much larger. Trees are vascular plants.

**Without a flower, you cannot have a seed. So how do non-flowering plants complete their life cycle?**

Not all plants begin their life from a seed. Some plants create rhizomes which are special places on a plant's root that can grow new plants. Other plants, like some ferns, drop their leaves onto the ground. From these leaves, new plants can grow.

# Answers to worksheet questions:

## Page 1:

(Word Search)

## Page 2:

10 - plant kingdom

9 - autotrophic

1 - nonvascular plants

6 - moss

4 - vascular plants

8 - non-Flowering plants

5 - flowering plants

3 - ferns

7 - conifers

2 - rhizomes

## Page 3:

"Imagine you are a drop of water. Write a story that says how you get into a plant and travel to its fruit. What do you see along the way?"

*Answers will vary.*

# Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

**The following text will give you the most important items to review for your activity today.**

Water travels through a vascular plant from the roots to the stem and into the leaves and flowers.

Without roots, many plants can still get the water they need, so long as their stems are submerged in water.

If you have to clip the roots off of a plant, or trim the stems, it is best to do this underwater. If this is not done underwater, an air pocket may form in the stem.

This air pocket can keep water from being moved through the plant!

# Colorful carnations

## Objective:

Children will run an experiment to determine how water travels through a plant.

## Materials:

two white carnations (one or more)

drinking glass for each carnation

food coloring

scissors

## Procedure:

Fill the drinking glasses half-full with water.

Add at least 20 drops of food coloring into the glasses. Each glass should have a different color.

Have an adult cut of the ends of the carnation stems at an angle.

Place one carnation in each glass.

Ask your child to make the following predictions:

*Which color will move through the carnation faster?*

*How long do you think it will take to see the colors in the petals?*

Have your child check on their carnations after several hours (it might take up to 24 hours for the colored water to be seen on the petals).

## Explanation:

Most plants get their water from their roots. The stem moves the water through the plant, into its leaves, flowers and fruit. Even though the carnations do not have their roots, the stem can still move water to the rest of the plant! The food coloring in the water does not harm the plant. It only help you to see where the water has been moved throughout the plant.

# Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

**The following text will give you the most important items to review for your activity today.**

The opening and closing of flowers is determined by several environmental conditions.

Some flowers absorb water from their stems and swell. As they swell, the petals of the flower move away from each other.

## ESP Activity: Flower power

### Objective:

Students will simulate how a plant "drinks" water.

### Materials:

paper flower (see attached)

scissors

bowl filled with water

clock with second hand

### Procedure:

Cut out flower and bend petals upward on dotted line to form a bloom.

Float bloom on top of water.

Record amount of time it took for bloom to open.

Increase/decrease the size of paper flower for experimentation.

### Explanation:

The water in the bowl gradually rises up through small holes between the fibers of the paper. As the water travels up the paper "petals" they begin to swell and move away from each other. This similar process occurs with most flowers as they open and close due to their water retention.

**Independent variable:** Size of the flower

**Dependent variable:** Length of time for the bloom to open

### Hypothesis:

If the size of the flower is (increased/decreased), then the length of time for the bloom to open will (increase/decrease).

